

Applic. No. 09/831,046

Response Dated August 25, 2005

Responsive to Office Action of May 27, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1: (Canceled).

Claim 2 (previously presented): The method according to claim 11, wherein the first operation

a) is a Diffie-Hellman function  $G(g^x)$ , wherein  $G()$  is an arbitrary, finite cyclic group  $G$ ; or

b) is an RSA function  $x^g$ .

Claim 3 (previously presented): The method according to claim 11, wherein said first operation is performed on a group  $G$ , wherein the group  $G$  is one of the following groups:

a) a multiplicative group  $F_q^*$  of a finite body  $F_q$ , in particular having

- a multiplicative group  $Z_p^*$  of the integers modulo of a prescribed prime number  $p$ ;
- a multiplicative group  $F_t^*$  with  $t = 2^m$  over a finite body  $F_t$  of characteristic 2;

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- b) a group of units  $Z_n^*$  with  $n$  as a composite integer;
- c) a group of points on an elliptic curve over a finite body;  
or
- d) a Jacobi variant of a hyperelliptic curve over a finite body.

Claim 4 (previously presented): The method according to claim 13, wherein the second key is a session key or an authorization associated with an application.

Claim 5 (previously presented): The method according to claim 13, wherein the Diffie-Hellman method is used to produce the second key.

Claim 6 (previously presented): The method according to claim 11, wherein the encoding is performed with the first key utilizing a one-way function, in particular a cryptographic one-way function.

Claim 7 (currently amended): The method according to claim 11, wherein ~~data transmitted is~~ the prescribed known value and

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the value only known to the first entity are confidential  
data.

Claims 8 to 10 (Canceled).

Claim 11 (currently amended): An authenticating method,  
comprising the steps of:

- a) performing a first operation by a first entity on a prescribed known value and on a value only known to the first entity to obtain an uncoded result of the first operation;
- b) encoding the result of the first operation with a first key known to the first entity and to a second entity to obtain an encoded result of the first operation, the encoding performed with the first key utilizing a symmetric encoding method;
- c) transferring a message from the first entity to the second entity, wherein the message comprises the encoded result of the first operation as well as the uncoded result of the first operation; and
- d) decoding the encoded result of the first operation by the second entity with the first key and authenticating the first entity only using the message.

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Claim 12 (currently amended): The method according to claim ~~[[1]]~~11, wherein the first operation is an asymmetric crypto process.

Claim 13 (previously presented): The method according to claim 11, wherein the result of the first operation is a second key with which the first entity is authorized to undertake a service on the second entity.

Claim 14 (previously presented): The method according to claim 13, wherein the second key is determined in relation to  $G(g^{xy})$ , by virtue of the fact that the second entity performs a second operation  $G(g^y)$  with a secret number  $y$  known to only it, the result of this second operation is encoded with the first key and transmitted to the first entity in the form of a message.

Claim 15 (previously presented): The method according to claim 14, wherein the message also comprises the result of this second operation, an identification or a time stamp in an uncoded form.

Claim 16 (canceled).

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Claim 17 (previously presented): The method according to claim 11, wherein the message further comprises an identification of an entity or a time stamp in both an uncoded form and in an encoded form.

Claim 18 (currently amended): An authenticating system, comprising:

a first entity and a second entity, the entities being provided with a processor unit, wherein,

a) said first entity being configured to perform a first operation on a prescribed known value and on a value known only to said first entity to obtain a result of the first operation;

b) said first entity being configured to encode the result of the first operation with a first key known to said first entity and to said second entity to obtain an encoded result of the first operation, the encoding performed with the first key utilizing a symmetric encoding method;

c) said first entity being configured to transfer a message from said first entity to said second entity, wherein said message contains the encoded result of the

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first operation and the uncoded result of the first  
operation; and

d) said second entity being configured to decode the  
encoded result of the first operation with the first key and  
said second entity additionally being configured to  
authenticate said first entity only using said message.